Geospatial AI to Turn Water Risk into Investment-Ready Resilience in Africa

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United Nations
Economic Commission
for Africa

EIS

LiSAG

FIG
International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

LANDS COMMISSION
GHANA

UNIVERSITY
OF GHANA

Setting the Scene

Why this Matters

Water insecurity is not just a hydrological issue — it's a data and governance crisis.

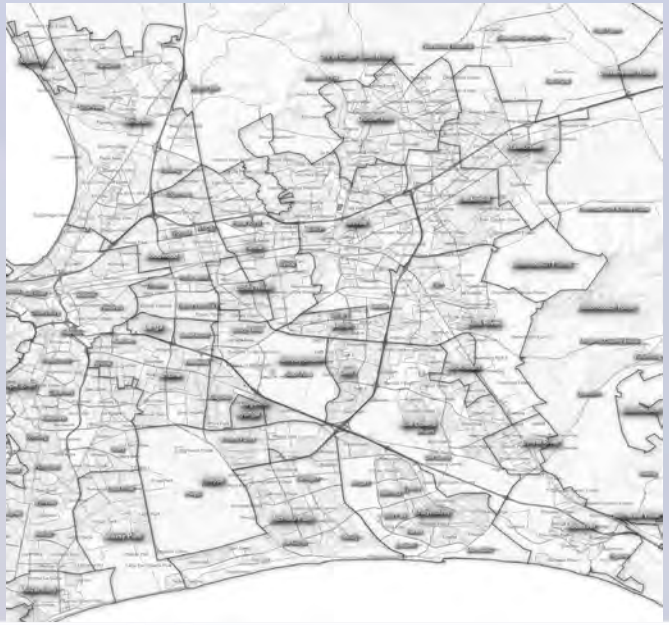
- Africa's growing water risk is both physical and systemic.
- To accelerate resilience, we need spatial intelligence linking water, infrastructure, and governance.

Key Water System Challenges in South Africa

- Over half of **households faced service interruptions** last year.
- Nearly half of **water systems are leaking or unbilled** before they even reach users.
- Almost one **in three potable-water systems are flagged** as “critical risk” — and most wastewater systems are similarly at high-risk.

The Private Sector

must play its part



*- from **corporates** and **banks** to **investors** and **insurers** yet water investment is defined by **complexity** - the very factor that makes it both difficult and full of opportunity.*

- **323** Large Dams
- **1 015** Water treatment plants
- **37 644 km** Bulk water lines
- **136 645 km** Reticulation pipes
- **7 159** Water reservoirs
- **2 693** Water pump stations
- **995** Municipal wastewater treatment works
- **144** Water Service Authorities
- **23** Registered Water Service Providers
- **7** Water Boards
- **1** Regulator

From Fragmented Data to Geospatial Intelligence

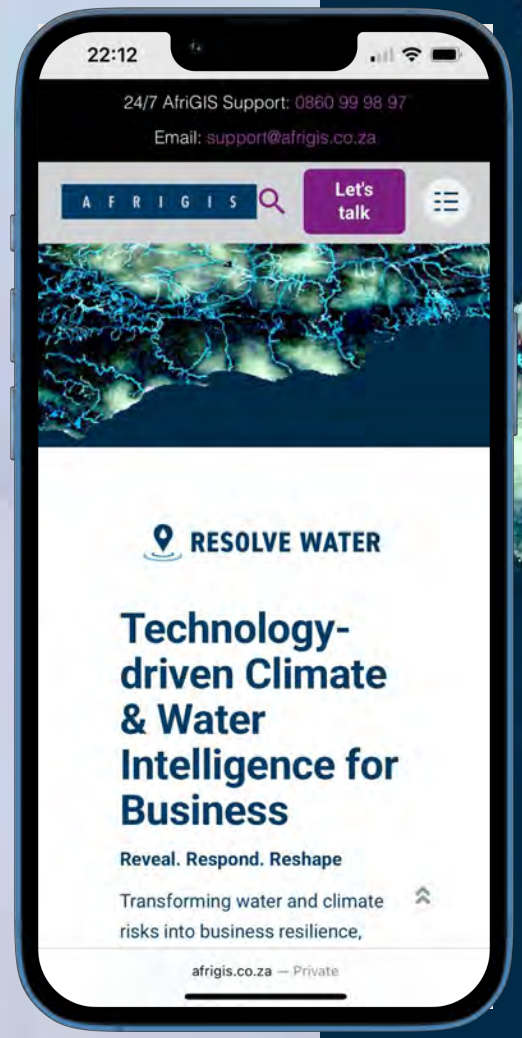
Across Africa, the problem isn't data scarcity — it's data fragmentation.

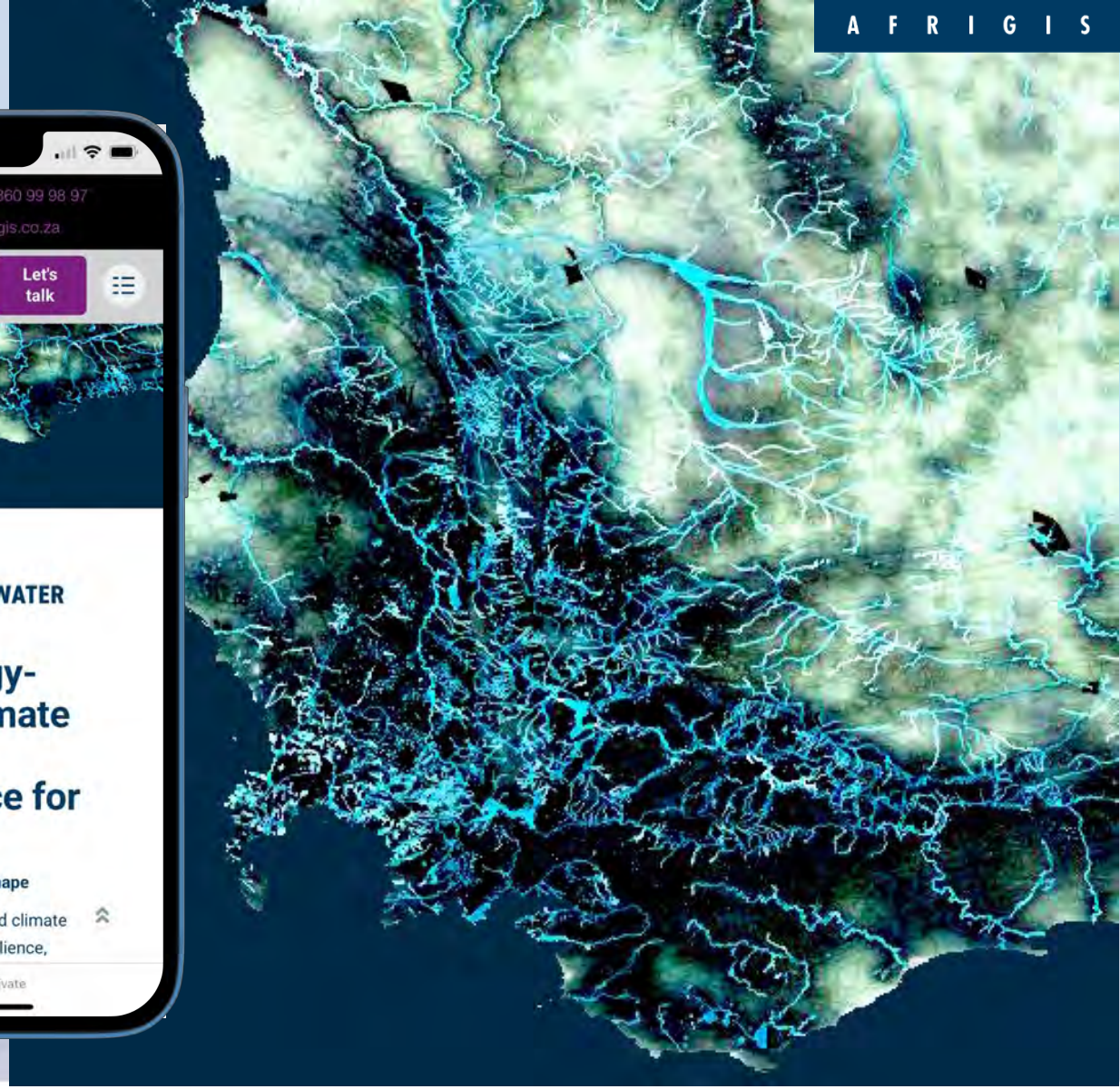
Key information sits in silos:

- Reconciliation Strategies & WSDPs – detailed plans, different formats.
- Blue/Green Drop Reports – valuable but not spatially linked.
- Utility, CMA & Water Board records – stored separately, rarely standardised.
- Donor and academic studies – full of insight, but hard to access or integrate.

Geospatial AI brings these silos together — converting scattered data into connected, decision-ready intelligence for Africa's water resilience.

Resolve Water bridges Africa's water intelligence gap — turning fragmented datasets into spatial visibility and shared evidence that support investment, planning, and resilience across the continent.





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Technologies

Geospatial Intelligence

- Integrates national and local datasets into a unified geospatial framework.
- Enables spatial risk mapping from catchment to tap, linking infrastructure, hydrology, and economic assets in one system.

Large Language Models (LLMs)

- Extracts and standardises data from thousands of unstructured reports — reconciliation strategies, WSDPs, Blue/Green Drop audits, and financial statements.
- Transforms text into structured, queryable metrics that populate Resolve Water's intelligence layers automatically.

Web Scraping & Live Data Feeds

- Continuously pulls updates from verified online sources — DWS, CMAs, water boards, municipalities, and research institutions — to keep datasets current and traceable.
- Ensures the platform reflects real-time policy, infrastructure, and performance changes across the country.

Satellite Imagery & Gravimetry

- Uses remote-sensing datasets to fill critical data gaps on water availability, land use, and groundwater trends.
- Provides consistent, country-wide visibility where ground data are incomplete or outdated.

Three Core Pillars

Insights • Impact • Investment

INSIGHTS	IMPACT	INVESTMENT
Seeing the full picture	**Quantifying what matters**	**Turning intelligence into investment**
Integrates national, municipal, and environmental data into a single geospatial intelligence platform, giving the private sector a clear view of water risk and dependency.	Translates complex data into comparable metrics — reliability, efficiency, exposure, resilience — to help investors and corporates assess risk and ROI.	Converts insights into bankable projects and partnerships, guiding where private capital achieves the highest commercial and sustainability returns.
Reveals key risks, inefficiencies, and opportunities across catchments, infrastructure, and value chains.	Pinpoints where investment delivers the greatest business continuity and impact.	Enables data-driven action for corporates, banks, investors, and insurers to strengthen water security.

Corporates

Water-intensive industries dependent on continuous, compliant supply for production, product quality, and ESG targets.

"Given the current service failures in my Pretoria bottling plant, what are the top three interventions that would deliver the highest return on investment while reducing production downtime and water costs under the 2030 water availability and reliability outlook?"

Banks & Lenders

Commercial banks and DFIs financing industrial, agricultural, and municipal clients.

"Which of the clients in our agricultural loan portfolio are most exposed to water availability risk by 2030, what is the potential revenue loss, and which resilience projects would qualify for green-finance support?"

Investors

Private investors, impact funds, and DFIs seeking scalable, transparent water-related investments.

"From the national project pipeline, which investments deliver the strongest water security impact per rand invested and meet our ESG verification requirements?"

Insurers & Reinsurers

Commercial and specialty insurers underwriting industrial assets and business-interruption risk.

"Which insured portfolios face the highest climate-related water risk, and how can we report this exposure in alignment with TCFD requirements?"

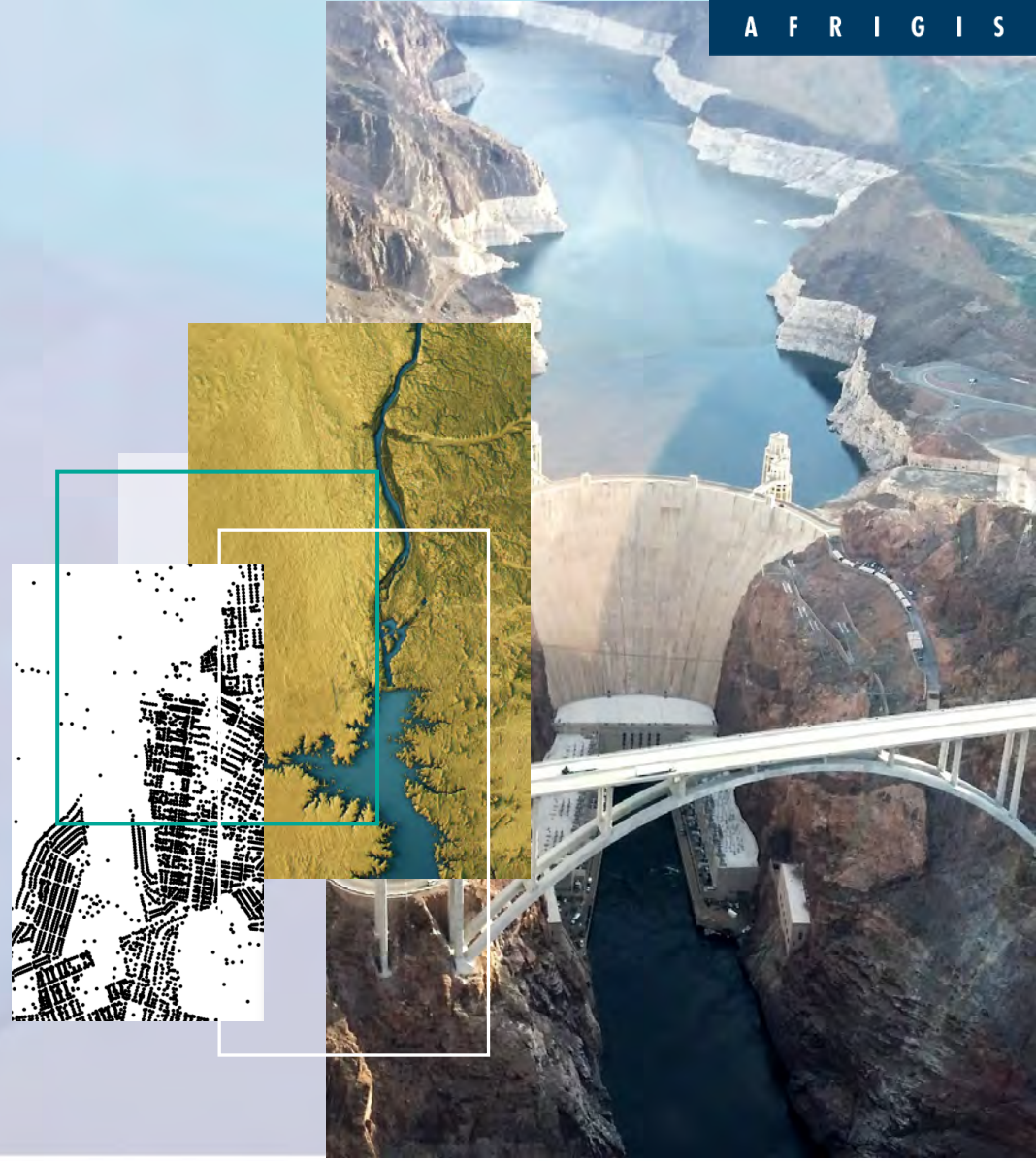
The African Water Resilience Opportunity

“From Risk Maps to Investment Maps.”

Key call to action:

- Partner to scale water resilience data infrastructure across Africa.
- Collaborate on national or basin pilots.

Africa can lead the world in spatially intelligent resilience.



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Thanks

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